September-October 1960

BER

Business and Economic Review

University of Missouri

University of Missouri

BUSINESS AND ECONOMIC REVIEW

Vol. 1 **September-October 1960** **No. 5**

CONTENTS

SURVEY OF SCHOOL OF BUSINESS AND PUBLIC ADMINISTRATION GRADUATES, Raymond W. Lansford 3

CONSUMER BEHAVIOR AND RESEARCH, Lincoln H. Clark 8

MANUFACTURING IN THE ECONOMY OF MISSOURI, James E. Collier 16

FACTORS INFLUENCING FARM REAL ESTATE VALUES, Fred E. Justus, Jr. 24

University of Missouri, Bureau of Business and Economic Research

ELMER ELLIS
President of the University

WILLIAM L. BRADSHAW
Dean of the School of Business and Public Administration

ROBERT W. PATERSON
Director of the Bureau

• • •

FACULTY ADVISORY COMMITTEE

Dean William L. Bradshaw (*ex officio*); Russell S. Bauder; Paul A. Kohler; Robert W. Paterson (*chairman*); Truman G. Tracy; Pinkney C. Walker; Samuel G. Wennberg.

THE BUSINESS AND ECONOMIC REVIEW

is published bi-monthly by the Bureau of Business and Economic Research, School of Business and Public Administration, University of Missouri, Columbia, Missouri. Second class postage paid at Columbia, Missouri.

NOTES ABOUT THE AUTHORS

RAYMOND W. LANSFORD

Raymond Lansford is Professor of Marketing and Placement Director for the School of Business and Public Administration at the University of Missouri.

He has taught at Central Missouri State College and New York University and has served as consultant and conference leader to sales organizations throughout Missouri and surrounding states. He has worked with department store, variety store and grocery chains concerning student employment training and evaluation.

LINCOLN H. CLARK

Lincoln H. Clark, Professor of Marketing at New York University, has been Editor-in-Chief of the *Journal of Marketing* and Secretary of Consumer Behavior, Inc. For years he has been an exponent on finding out how consumers reach their decisions. Such knowledge is basic to aid or induce consumers to make better decisions.

Professor Clark's article is based on a seminar paper he prepared for the Workshop in Research Methods conducted by the University of Illinois in August of this year at Boulder, Colorado.

JAMES E. COLLIER

Dr. Collier has been a member of the faculty of the College of Arts and Science for 16 years. He was the first chairman of the Department of Geography, serving from 1950 to 1956. He was a part-time consultant in the U. S. Bureau of the Census in 1956, 1957, and 1958. As a part of this service he assisted in the preparation of the *National Atlas of the United States*.

Dr. Collier prepared an *Agricultural Atlas of Missouri* for the College of Agriculture in 1955 and has been engaged in research on the geography of Missouri for a dozen years. The present paper on "Manufacturing in the Economy of Missouri" is a result of research done under a 1960 Summer Research Fellowship granted by the University Research Council.

Dr. Collier has published papers in the *Annals of the Association of American Geographers, Economic Geography, Journal of Geography, Professional Geographer, Scientific Monthly,* and *University of Missouri Studies.*

FRED E. JUSTUS, JR.

Fred Justus, Jr. is Assistant Professor of Agricultural Economics at the University of Missouri. Professor Justus received his Ph.D. in Agricultural Economics from the University of Illinois in 1955 and joined the faculty of the University of Missouri in 1957.

He teaches courses and conducts research on farm management and rural real estate appraisal. Although he has broad interests in these fields his keenest interest is in the theory of decision making and the role of personal values and goals in farm business management.

Dr. Justus' paper is a contribution from the Missouri Agricultural Experiment Station, Journal Series No. 2212, approved by the Director.

Survey of School of Business and Public Administration Graduates

RAYMOND W. LANSFORD
Professor of Marketing
Director of the Placement Office
School of Business and Public Administration
University of Missouri

The Placement Office of the School of Business and Public Administration at the University of Missouri has completed a questionnaire survey including its graduates from 1949 through 1958 to secure information concerning their work, salary, location, and post graduate education and job preparation. Graduates were also requested to submit suggestions and ideas that would be beneficial to the school in planning its future programs. This report is a preliminary analysis of the survey information. A more detailed report will be carried in a forthcoming issue of BER.

SURVEY DATA

According to records maintained by the Dean's office in the School there were 3,347 students who completed requirements for graduation during the years 1949 through 1958. The Alumni office of the University furnished mailing addresses for most of these people but 133 letters containing questionnaires were returned marked "insufficient address." Of the 3,214 questionnaires which presumably were delivered, 1,172 usable responses were returned and used in the tabulations included in this report. More than 45 additional responses have been received since this report was begun and are not included in the various tables. The 1,172 questionnaires returned repre-

Year	Per cent of graduation class returning questionnaire
1949	32.3
1950	35.6
1951	36.3
1952	29.2
1953	37.8
1954	33.1
1955	40.8
1956	34.9
1957	36.4
1958	35.5

sent 36.47 per cent of the total survey number. A breakdown of returns by year of graduation shows the fairly even proportion of responses throughout the survey period:

The smallest proportion of returns came from 1952 graduates while the largest percentage represented those who graduated in 1955. The number of returns is insufficient to do more than point up some of the more interesting characteristics of graduates over a period of time.

MARRIED STUDENTS

There has been an unusual amount of discussion in educational circles and elsewhere concerning the number of married students on campus now and during the period shortly after World War II. A question was included in the survey to identify whether the respondent was married during the junior and senior years in the School. The survey group was also asked to state whether they were married as of the date the questionnaire was returned. Replies to the two questions are summarized as follows:

Year of Graduation	Per Cent Married as Students	Per Cent Married Now
1949	36.9	94.6
1950	26.3	91.9
1951	29.1	91.0
1952	20.0	89.4
1953	23.0	85.7
1954	26.5	85.3
1955	32.4	74.5
1956	28.0	88.0
1957	35.0	76.0
1958	35.8	66.9

Classified by year of graduation, the percentage of married students tended to decline from 1949 to 1952 and then gradually increased until 1956. The percentage in the last two years of the period covered shows an increase almost to the level of the 1949 class.

SALARY LEVELS

One area that is always of interest is that of salaries. Respondents reported on beginning and present salaries. This information was computed in the forms of beginning and present average salaries for each graduating class and, in addition, the present high salary in each class was extracted from the replies.

Year	Beginning Ave.	Present Ave.	Present High
1949	$3,755	$10,967	$42,000
1950	3,437	9,999	50,000
1951	3,820	9,306	28,800
1952	3,747	8,518	17,000
1953	4,136	8,711	18,000
1954	4,086	7,615	14,500
1955	4,391	7,880	30,000
1956	4,328	7,273	20,000
1957	4,495	6,615	18,000
1958	4,550	6,280	16,700

The beginning salary shows a rather consistent though sporadic increase from 1949 through 1958 which might be expected due to the changing economic conditions during the decade and the presence of inflation during most of the years in the period. The present average salary shows the 1949 graduate has increased his yearly earnings by approximately $520 annually. The last column shows the maximum salary of an individual in each class year. These maximum salaries in the class seem to have little relationship to the number of years of experience gained after graduation.

JOB MOBILITY

The respondents were asked the number of jobs they had held in different organizations, excluding the armed forces unless military work was a career. The

number of different jobs or positions that had been occupied after graduation varied from a low of one to a high of seven. As might be expected the most recent graduates had fewest job changes. The following table shows the average number of job changes by year of graduation.

Year	Number of times changed jobs
1949	2.56
1950	2.47
1951	2.58
1952	2.19
1953	2.19
1954	1.91
1955	2.04
1956	1.64
1957	1.44
1958	1.40

The average number of changes noted above indicates some stability of the graduates as an overall group. The table also indicates that the average number of job shifts by graduates who have been out in the world for ten years is 83 per cent more than the graduates who have been out for only two years.

B & PA AND OTHER PROGRAMS

The survey group was also asked if they were employed in jobs that require more or different training than the major in Business and Public Administration had offered them. The answers to this question gave an indication of other areas of concentration that were thought to be helpful in pursuit of careers. The results are shown in the following table, classified by per cent of respondents who thought particular programs would have given them a broader base for the future enlargement of their responsibilities.

If the returns from the questionnaire represent an adequate sample, the need for additional training in related fields clearly exists. Engineering training seems to lose significance in recent years while emphasis on Arts and Science is extremely sporadic reflecting, quite possibly, shifts in recent popularity of such programs among leaders of large business concerns. The great preponderance of respondents did not answer the question and we may assume that they were satisfied with the major completed in the School of B & PA. A penetrating study to establish the truth on this assumption should be undertaken before arriving at a firm conviction.

Year of Graduation	Agri.	Journalism	Engineering	Arts and Science	Other degrees named
1949	1.2%	1.8%	10.7%	5.4%	Law
1950	1.5	3.0	19.7	6.6	Education
1951	2.2	2.2	16.4	3.7	Law
1952	2.4	1.2	16.5	25.9	Law
1953	1.1	3.3	18.7	2.2	Education
1954	0	1.5	16.2	4.4	Law
1955	2.9	1.0	11.8	3.9	Education & Law
1956	0	3.0	9.0	4.0	Law
1957	0	3.4	10.3	6.0	Law
1958	.92	2.8	10.1	6.4	Law

SOCIAL ACTIVITIES

That many students take part in the social life of the School while in residence is revealed by the following table. The consistency of participation in junior college, college, and later in community life is as follows:

Year of Graduation	Per Cent Who Participated in Pre B & PA Extra-curricular Activities	Per Cent Who Participated in B & PA Activities	Per Cent Who Belong to Civic Organizations
1949	31.5	38.7	50.0
1950	41.4	44.9	48.5
1951	44.8	57.5	46.3
1952	45.9	50.6	30.6
1953	37.4	42.9	34.1
1954	42.7	51.5	36.8
1955	39.2	38.2	39.2
1956	42.0	42.0	40.0
1957	39.3	53.8	39.3
1958	42.2	59.6	30.3

The type of extra-curricular activities considered were athletics, social and professional fraternities, student council, and University publications. The increase noted in Business and Public Administration school activities is accounted for by more student interest in professional fraternities. The fraternities provide opportunities for contacts with professors and with prospective employers. The table further indicates that one-third to almost one-half of all respondents took part in junior college activities while one-third to over one-half participated in social activities in college. When the graduate enters the business world the importance of community or civic activities seems to be heightened. The older he is the more likelihood there is that he will become involved in some form of community social activity.

POST-GRADUATE EDUCATION

The graduates of the School of Business and Public Administration have not stopped their academic training. A rather surprisingly large proportion have continued their formal education. The answers to questions on additional college work taken and advanced degrees earned revealed the following information:

Year of Graduation	Per Cent Taking Additional College Work	Per Cent Completing Requirements for Advanced Degree
1949	38.7	14.3
1950	36.9	11.6
1951	34.3	13.4
1952	34.1	10.6
1953	29.7	14.3
1954	36.8	11.8
1955	30.4	9.8
1956	26.0	11.0
1957	24.8	9.4
1958	22.9	5.5

The above table indicates that more graduates take additional training as the years after graduation increase. The completion of advanced degrees increase in the same manner as the additional training secured by each year's graduates. The

advanced degree most frequently mentioned by respondents was the Bachelor of Laws and was followed by the Master of Arts. Many graduates indicated that courses were taken to strengthen them in an area of work.

SIZE OF COMMUNITY

Another question in the survey concerned the size of the community which the graduate called his home community and also the one in which he now lives. The largest per cent of the 1949 through 1958 graduates came from towns of 5,000 or less. The places where the largest per cent now reside are in cities of 250,000 up to 1,000,000. This is shown in the following table.

Year of Graduation	0-5000 Size		250,000-1,000,000 Size	
	% came from	% going to	% came from	% going to
1949	34.5%	6.6%	16.1%	31.5%
1950	27.3	8.1	19.7	29.8
1951	26.1	8.2	24.6	29.9
1952	23.5	3.5	17.6	30.6
1953	25.3	8.8	26.4	36.3
1954	16.2	2.9	20.6	32.4
1955	35.1	7.8	11.8	36.3
1956	19.0	3.0	18.0	31.0
1957	35.0	5.1	12.8	39.3
1958	32.1	8.3	20.1	43.17

The above table shows the large percentage of respondents whose home towns were relatively small and who, after graduation, took jobs in large cities. The fourth and fifth columns of the table show the per cent of graduates coming from and also those going to a city of 250,000 to 1,000,000. This is one more indication of the decline of so-called rural areas in Missouri. Between 1950 and 1960 eighty-six of Missouri's 114 counties experienced population losses. The assessment of college graduates in the survey certainly shows that opportunities are declining in the small size communities.

Many excellent comments were made by survey respondents concerning the curricula, the services of the school, the contact with graduates, and most of all the personal pride and loyalty for the University as their school. Further interpretation of the data will reveal the number of graduates still in the major field of concentration and also the number reaching top management. This of course can only pertain to graduates who have been out five years or more or who are in business for themselves or who participate in a family business.

The 1960 School of Business and Public Administration graduates entered the business field with an average beginning salary of $5,156. This figure is based on more than 100 graduates who have returned their job information sheets to date.

The graduates of the School of Business and Public Administration are located in all states and many of the graduates of the past three years are still in military service which effects the job and salary range information.

Consumer Behavior and Research

LINCOLN H. CLARK
Professor of Marketing
New York University

The ideal definition of an emergent science provides a conceptual framework that stimulates the continuous production of hypotheses. The traditional definitions of marketing are deficient in that they call only for the description of a complex process. The consumer is reified at the end of the process. This probably stems from Adam Smith's observation that "consumption is the end of production." A more recent aphorism, however, "the consumer is king," appears to provide a more fruitful concept. Its application would shift attention from the marketing process to the market transaction and suggest the following definition: **Marketing is the social science concerned with market transactions.**

The implications of this definition require some elaboration. Although breaking with tradition in marketing literature, this definition conforms to a widespread scientific tradition of specifying a science by the kind of phenomena under investigation. The phenomena of concern to marketing are marketing transactions.

A market transaction is a social phenomenon. The "social fusion" that produces a market transaction is the agreement of two (or more) traders to exchange scarce resources. The general term "traders" had to be used because of the operational difficulty in differentiating buyers from sellers. Usually this can be done according to the nature of their respective purchasing powers. The seller is the trader who exchanges goods and services, or "limited purchasing power" for the "general purchasing power" of the buyer. This method works, e.g., when the buyer pays with currency, check or sea shells for goods, services, securities, real estate, etc. but it breaks down in some barter and foreign exchange transactions.

Measurement Concepts.

Market transactions are measured by: (a) the amount of "limited purchasing power" tendered by the seller, i.e., the physical quantity of goods and services, (b) the amount of "general purchasing power" tendered by the buyer, i.e., the quantity of money, (c) the ratio of the two amounts exchanged, i.e., the price. In the special case of a single transaction, the (b) and (c) measures are equivalent; whenever data on transactions are aggregated, however, these measures become distinct.

The marketist's use of these three measures of market transactions distin-

guishes him from other economists. The price economist, for example, is concerned with (c) price, as a dependent variable and with (a) the physical quantity, as one of the independent variables determining the price. The demand economist studies (a) physical quantity as the dependent variable influenced by (c) price as one of its determinants. The marketist, however, is primarily concerned with (b) quantity of money, or dollar sales volume, as the dependent variable and (c) price as one of its independent variables. Scitovsky in *Welfare and Competition* (pp. 18-21) has dealt with these distinctions at length, noting the conditions under which the consumer is "price-maker" or a "price-taker." In our economy, as well as in Scitovsky's perfectly competitive economy, the consumer is usually a "price-taker" or "non-taker"—the seller proposes, the consumer disposes. The consumer's dispositions influence the seller's future price offers.

Human vs. Commodity Behavior.

The interest of marketists also differs from that of some economists on the human vs. commodity behavior issue. Boulding in his *Economic Analysis* has observed that, "It is the behavior of commodities, not the behavior of men which is the prime focus of interest in economic studies." This approach assumes that things can of themselves change other things, and ignores the effect of human intercession. However, human intercession may, for example, prevent a change in price or income from automatically (or invariably) resulting in the consumption change hypothesized by economists. In contrast, Katona in *Psychological Analysis of Economic Behavior* stresses that it is not sufficient to analyze the results of consumer behavior but "it is necessary to study the decision-makers and the process of decision-making because motives, attitudes and opinions influence actions and thereby what happens in and to the economy."

In this paper the terms "consumer" and "buyer" are regarded synonymously as decision-makers rather than as users. The study of the consumer as a user of that hard-to-specify group of economic goods called "consumer products" is another field of study.

Types of Aggregation.

The outcomes of consumer behavior are aggregated in several ways: (1) by geographical areas—central districts, suburban areas, counties, states and nations, (2) by commodity classes—members of a firm's or industry's family of products or consumer budget categories such as food, clothing, shelter and (3) by marketing institutions—particular firms or independents, chain stores, brokers, wholesalers, etc. as a class.

In the analysis of each of these three types of aggregates there is a rough division of labor. Economists tend to analyze large aggregates—national purchases, broad industry classes and functional classes—whereas, marketists tend to concentrate on lesser aggregates—the country, the brand, the firm.

Market Transactional Determinants.

Many attempts have been made to provide a systematic classification of the various categories of determinants of consumer behavior that lead to market transactions. None of them appears to be very neat. While preparing this paper I tried again, but in vain, to devise a system that would satisfy at least myself. As a start, however, it is proposed that a market transaction is determined by a four-fold set of forces: natural and governmental, and seller and consumer. The problem is to specify the elements in the sub-sets, which I can do only incompletely. The "natural sub-set" includes

temperature, humidity, wind velocity, topography, proximity to water, etc. The "governmental sub-set" includes many institutional activities that affect purchasing power, product qualities and prices, consumer attitudes, etc. The "seller subset" includes a multitude of actions regarding product, package, price, promotion, payment, channel of distribution, etc. Perhaps the best way to start classifying consumer forces is to divide them between purchasing power and willingness to buy, but both of these are very broad concepts.

One of the first steps in the development of any science is the classification of its elementary forces, but in marketing it has not yet been done systematically.

Optimum Combination.

What is the optimum combination of forces that should be applied to influence consumer behavior? At the one extreme are those who argue for zero pressure, contending that any pressure is exploitation of the consumer. Partisans for particular marketing forces, e.g., home economists, advertising men, product and package engineers, price economists, etc., naturally favor their particular remedies. I think that the solution is to aim for the least-cost combination of the several forces needed to trigger a specified volume of market transactions—in other words, to have the "right" products, at the "right" places, at the "right" times, at the "right" prices with the "right" information. "Right," of course, is a tricky concept; it means neither more nor less than necessary. I believe that the proper analysis is analogous to the theory of production but I am not aware of any significant work on it.

METHODOLOGICAL PROBLEMS

The methodological problems of the marketist correspond to those of the economist, c.f. Stone in *The Role of Measurement in Economics:* how to measure variables, how to explain their past variations and how to predict their future magnitudes. Aspects of each will be discussed briefly in turn.

Out of the multitude of measurement problems the following three have been selected:

(1) Eliciting Data from Firms.

Most firms record their market transactions—for their own use or for the tax collector, but not for the convenience of the researcher. The researcher needs more knowledge on the effectiveness of alternative methods of eliciting data from firms. The principal questions are: How should the researcher (a) satisfy the firm that the data will not be disclosed to competitors, creditors, or customers and (b) induce a firm to spend the time required to amass, transcribe and submit wanted data? Good solutions have been found by trade associations which have retained certified public accountants, by store audit research firms, by government bureaus and by some University Bureaus of Business and Economic Research. The individual researcher, however, frequently has a discouragingly difficult time. The problem for the *bona fide* researcher has been complicated by industry's experience of being solicited for data by professors who have prostituted themselves to advertising and market research firms. For practical, if not for moral reasons, it behooves us to take steps to outlaw this kind of commercial espionage.

The fact that some researchers are more effective than others in winning industry cooperation justifies investigation of the causes of their success. Herbert Simon, in a talk last spring, mentioned that his School in Carnegie Tech is guiding budding researchers on procedures

to persuade firms to disgorge data. It would be interesting to hear more about these procedures. We also need to know more about the effectiveness of alternative incentives. For example, there is some indication in Ferber's savings research study that, appeals for data simply to advance science are more effective than offers to tangible rewards for data or appeals to mutual or self-interest. The secrecy concerns of industry are not unsurpassable barriers for the legitimate researcher but are simply problems to be solved.

(2) Observational Methods.

Consumer researchers sometimes seem to confuse ends and means. What is primarily wanted is information *about* the consumer rather than information *from* the consumer. There appear to be great opportunities to supplement data obtained by questionnaire methods with data by observational methods. While preparing this paper I could not find a good treatment on the application of mechanical devices to obtain consumer data, e.g., traffic counts, records of the twists of radio and TV dials, pictures of customer routes in shopping centers and in particular stores, inventories of kitchen and bathroom cabinets, human reactions to various stimuli, etc. Certainly we should expect modern technology to affect research methodology. The marketist should know more about the scope and limitations of the new mechanical research gadgets.

(3) Non-Sampling Errors.

The questionnaire method of interviewing individuals—by mail, telephone and in person—is widely used in consumer behavior research in order to obtain data that is unavailable from institutions or by observation. Questionnaire data, however, is particularly suspect. Many steps have been taken to reduce the grounds for suspicion, by probability sampling, pre-testing questionnaires, training interviewers, etc.

The prospective user of questionnaire data, however, wants more than a report that essentially says that the researcher has taken many steps to reduce error. The user wants some idea of how far off from the "truth" the data may be. In order to satisfy this desire, statisticians have developed ingenious methods to estimate the possible unrepresentativeness of a sample attributable to its size in relation to that of the population from which it is drawn. But such estimates create a false sense of confidence in the data if there are large non-sampling errors of unknown or unestimated magnitude.

There is a great need for methods to estimate the possible magnitude of the non-sampling errors in sample surveys. Such methods would entail using some standard or "true" data, e.g., data from other surveys, from firms, from observations. The need is illustrated in Robert Ferber's savings behavior research project at the University of Illinois. The problem is to make the best possible estimate of the prevalence of several characteristics of individuals in a sample. Accurate data on some of the desired characteristics are available from institutional sources. The data on the remaining characteristics, obtained by field surveys, vary in accuracy; some of the respondents have not responded to any questions, others to only part of the questions, still others to part of the questions with information that is known to be inaccurate. The problem is to complete the incomplete individual profiles with data from respondents whose complete profiles are known.

VARIATIONS IN DATA

There are two main tasks in explaining the variations in market transactional data: (a) the formulation and (b) the testing of hypotheses. Many published consumer behavior studies, if they deal with hypotheses at all, do so after, not before, the data are collected, i.e., they are inductive, with any hypotheses *implicit* in the design of the study. Remarkably few consumer studies have been deductive, with *explicit* hypotheses. It is suggested that the "explicity" of the hypotheses is an excellent criterion in appraising consumer studies. Applying this criterion, one might, for example, question whether the mammoth consumer purchase study of *Life* magazine is worth its reported million dollar cost. After its publication, *Life* retained several academicians "to interpret the data." Their task could be stated as an attempt to discover the implicit hypotheses of the original designers of the study and to test some hypotheses which they might formulate against the accumulated data. The *Life* approach will yield knowledge but cannot be regarded as an efficient approach; efficient consumer behavior research starts with tentative explicit hypotheses.

FORMULATION OF HYPOTHESES

The basic requirement to advance science in marketing is to get marketists "hypothesis-oriented." Most of the present generation of marketists are "case-oriented."

Establishing hypotheses is intellectually harder than deciding cases. To become hypothesis-oriented, many marketists need guidance on how to formulate hypotheses. The general literature on research methodology is not very helpful because of the difficulty in seeing the similarities of marketing hypotheses to the usual example drawn from the physical sciences. Moreover, many marketists are renegade economists because they are skeptical of the use of *ceteris paribus* by economists. Thus, for example, few marketists even accept the fundamental "Law of Demand" as promulgated by Cournot and Marshall or as enunciated by modern economists, e.g., Stigler in *The Theory of Price:*

> The higher the price of a commodity, the less of it he will buy . . . "other things"—prices of substitutes and complements, income and tastes—remaining the same.

It may be that marketists are unsophisticated in not appreciating attempts to formulate pure or net relationships between two economic variables, but possibly their skepticism is intuitive. Although I do not pretend to know the requirements, I suspect that there is much more to be said than that a properly formulated hypothesis should essentially state, "If X, then Y will follow, *ceteris paribus*." My suspicion is based on the conviction that the independent variables in consumer behavior are not only interdependent with the dependent variable but also with each other.

Boulding has confirmed my doubts with his *Economic Analysis* (pp. 717-725). He showed that under certain conditions the elasticity of demand with respect to selling cost is greater, and under other conditions is less, than its elasticity with respect to price. This suggests that the Law of Demand might be refined as follows: consumers' purchases vary inversely with price only when consumers receive an increasing amount of information about price changes, *ceteris paribus*.

In addition to guidance on the formulation of hypotheses, marketists need the inspiration of case illustrations. Three sources come quickly to mind. One is

studies in allied fields, e.g., how March and Simon have culled management literature for hypotheses. A second is to seek to adapt broad hypotheses from economic theory. For example, it might be profitable to explore the applicability of a "Theory of Diminishing Marginal Productivity of Marketing Costs." Such an exploration could include questioning the tradition of portraying demand curves as concave and suggest that they should be drawn convex to the horizontal axis. A third, and possibly the most fruitful source of new hypotheses, might be the multitude of unpublished empirical studies of marketing research firms and departments. As an example, a recent *Time-Life* study seems to confirm the hypothesis that "If consumers mention 'habit' as the only reason for their purchases of a particular brand, their rate of purchases of the brand will diminish." Interesting hypotheses can be found in almost every commercial research study —but these studies are seldom published and often are unavailable for outside inspection.

Testing Hypotheses.

Much of the vast literature on the testing of hypotheses is irrelevant or unintelligible to most marketists. Perhaps marketists must become statisticians, or perhaps, there could be more cooperation with a functional division of labor between them. It is the marketist's duty to formulate a testable hypothesis—but when is a hypothesis testable? Presumably it must be subject to analysis by some known (or new) method. Because this subject has recently been dealt with by Lazarsfeld (see *Social Science Research on Business: Product and Potential*, pp. 99-155) rather than start afresh it might be interesting to appraise the completeness and relevancy of the framework provided by his three approaches: (a) Distributive, (b) Morphological and (c) Analytical.

DISTRIBUTIVE APPROACH

The distributive approach in consumer behavior research starts with the outcome. Consumers are dichotomously classified according to whether or not they have consummated a specified kind of market transaction. Performance rates are then compared for various groups, time periods, or situations. A very simple illustration is afforded by the following case: A manufacturer wished to test the hypothesis that duckhunters, offered prepaid freight, would buy as many boats direct from the manufacturer as they would from their nearest dealer, with freight charges added to the price. A small advertisement was placed in a national sportsman's magazine inviting duckhunters to write for information. Alternate respondents were offered the two propositions. The names of the buyers were obtained from the dealers. The tabulation of the percentages of buyers who received the dfferent propositions conclusively rejected the hypothesis.

MORPHOLOGICAL APPROACH

The morphological approach studies the process of consumers in arriving at a specified type of purchase decision. As an illustration Lazarsfeld used the first sponsored project of what is now called the Inter-university Committee for Research on Consumer Behavior—the Katona and Mueller study which is included in *Consumer Behavior: The Dynamics of Consumer Reaction* (pp. 30-87). I will try to formulate what I believe was one of the implicit hypotheses of this study: Consumer deliberation is directly related to the consumer's education and inversely related to his income, with the result that "middle class" consumers are the most deliberate. The interviews of buyers of durable consumer goods were classified according to several dimen-

sions: (a) the extent of circumspectness, indicated by the length of the planning period and the number of alternative purchases considered, (b) the extent of information-seeking activity, indicated by the number of stores visited, advertisements read, the advice looked for, and (c) the number of features—style, operating costs, service arrangements, etc. —considered. Out of these and other aspects they constructed an index of deliberation. The hypothesis, as I have expressed it, was supported by the findings.

ANALYTICAL APPROACH

Lazarsfeld labels the analytical approach as the attempt to assess the significance of a particular independent variable. Ideally, the result would provide an elasticity coefficient representing the percentage change in sales associated with a small percentage change in the independent variable. Such studies are extremely complicated and appear to have primary significance as intellectual exercises in econometrics. It is a subject that could not be adequately handled today. Morgan's annotated bibliography in *Consumer Behavior: Research on Consumer Reactions* (pp. 93-219) is a good source of references.

A less ambitious and more easily attainable goal is to establish whether or not a particular variable is more influential than another. Lazarsfeld divides the procedure into four steps:

> First, one has to establish which cases are actually comparable. A smoker who has just changed his brand of cigarettes must be interviewed differently from one who has remained loyal to the same brand for the last ten years. Second, it is necessary to develop interviewing techniques that elicit enough information for the investigator to assess the role of the factor that interests him. For instance, experiments have shown that 2 per cent of the buyers answered the question "Why did you buy this brand?" with references to advertisements; when the question was changed more specifically to "What made you *start* using this brand?" 24 per cent spontaneously mentioned advertisements. The third step is usually the most complicated. The investigator must make his assessment in each case: How reliable is it? Smith and Suchman have demonstrated that a number of different analysts agree quite well when they read the same cases and are asked to rate whether the role of a radio commercial was practically decisive, whether it had no importance, or whether it was somewhere in between (20). The fourth step provides the final result in terms of a statistical statement; X per cent of the cases were strongly influenced by a newspaper campaign, the advice of friends, or whatever the case may be.

PREDICTION OF BEHAVIOUR

Several methods are used to try to predict consumer behavior. The most sophisticated is the "model approach" which, as expressed by Stone in *The Role of Measurement in Economics:*

> . . . requires that we can define the state of the system, or some part of it, in terms of a knowledge of the values of certain variables and that we possess a dynamic theory by means of which we can derive future states of the system by logical implication from a knowledge of the present state.

Economists, e.g., Stone, Friedman, Duesenberry and others have followed the model method. The "model approach," although scarcely used in industry, need not be ruled out as *too* sophisticated. For example, Charles Kellstadt, Chairman of Sears Roebuck, used a simple model when he recently predicted that, "If wages and salaries con-

tinue to rise in the second half of 1960, retail purchases will also rise." It would be interesting to know whether Mr. Kellstadt purposely or inadvertently avoided a reference to "changing buying intentions" as an important variable. The significance and reliability of intentions in predicting behavior which has been studied by Katona, Tobin and Juster has some similarity to the "sales force composite method" used by sales forecasters. Perhaps it would be possible to incorporate "willingness to buy" and "ability to buy" into a combined index as a new method for predicting the sales of particular commodities or firms.

Compared to the model approach, the predictive methods described in marketing literature are quite primitive, e.g., jury of executive opinion, sales force composite, correlation analysis, and trend and cycle analysis. The pragmatic test of the worth of a method is not its elaborateness but how well does it work? The best report I have read on the various methods is that of the National Industrial Conference Board in a volume entitled *Forecasting in Industry*. Good as it is, it has not established the conditions that determine the reliability of the various methods. This is a tough assignment but its researchability warrants consideration because men insist upon predicting consumer behavior. More knowledge about the efficacy of the various methods must be provided.

Manufacturing in the Economy of Missouri

James E. Collier
Associate Professor of Geography
University of Missouri

Economic activities in Missouri are numerous and varied. The natural resources of the state are abundant and diversified. Its location and transportation facilities permit it to draw additional resources from beyond its borders. The economy of the state is therefore broader and better balanced than that of states with a more limited resource base and a greater dependence on agriculture, manufacturing, or other individual economic activity. Many raw materials produced in the state find ready markets in nearby industrial plants. Conversely, many local manufacturing establishments draw the greater part of their raw material needs from within the state. In spite of the variety of activities and the diversity of the economy, or perhaps because of this characteristic, manufacturing is its most important sector. Manufacturing establishments employ more people, provide a larger income, and have a greater value of output than any other segment of economic life in Missouri.

In attempting to evaluate the contribution to the whole made by the several types of economic activity, it is desirable to group such activities into two broad classes: those whose end is a product having sales value and those which render a service. Agriculture, manufacturing, mining, and forestry are the principal productive activities in Missouri. Service activities differ greatly in their nature, ranging from transportation, communication, and wholesale and retail trade to business services, personal services, repair services, and professional services. The broad category also includes finance and banking, insurance, and real estate. The several types of services may be rendered to individuals, or to business organizations. Still other economic activities of a non-commodity-producing nature are the various levels of public administration and government: federal, state, and local.

MEASURING ECONOMIC ACTIVITY

Those economic activities which result in a commodity or product for sale can be measured and compared by means of the value of that product or commodity. The gross and net value of manufactured

products are statistical measures of manufacturing activity for a given area. The service functions, on the other hand, have no comparable product to which a value can be attached and by which the service can be measured. Rather, the value is in the services themselves. This value can be measured by means of the wages, salaries, or fees received by the individuals or groups who perform the services, but not on a basis quite comparable to the value of a product. The two means of measuring and comparing the economic significance of both productive and service sectors of the economy, therefore, are the number of individuals engaged in the activity and the income they receive.

Comparisons among the economic activities which result in a saleable product are not entirely satisfactory, because of incomplete or noncomparable data. The available data point conclusively, however, to the primacy of manufacturing over other productive pursuits in Missouri. The net value of manufacturing activity is the "value added by manufacture." This is the value of shipments from manufacturing establishments, less the cost of raw materials, semi-manufactured parts and components, fuels, purchased electric energy, and contract work.[1] This "value added" avoids the duplication in the value of shipments which result from the use of products of some establishments as raw materials or component parts by other establishments.

The value added by manufacture in Missouri was $2,727,266,000 in 1954 and $3,162,764,000 in 1958.[2] The contribution of mining to the economy of the state is indicated by a comparable measure, the "value added by mining."[3] This totaled $68,571,000 in Missouri in 1954 and $66,159,000 in 1958, both far less than the value added by manufacture. The value added by manufacturing also exceeds the profits from farming. Farm income in Missouri in 1958 was 629 million dollars,[4] only one-fifth as much as the value added by manufacture.

EMPLOYMENT

In 1950, when more than 1.5 million individuals were gainfully employed in Missouri, the largest group was engaged in manufacturing[5] (Fig. 1). These numbered 331,885, or more than one-fifth of the total employed population. The number in agriculture (266,872) was 17.5 per cent of the total employed. Fewer than 10,000 were engaged in mining and less than 1,000 were in forestry. The second largest industry group was wholesale and retail trade, one of the non-product groups. Almost 20 per cent (298,261) of all employed individuals were engaged in trade. Service industries **per se,** including business and repair services, personal services, entertainment and recreation services, and professional and related services, totaled 252,422, or 17 per cent of all employed persons. Numbers employed in other industry classes were 134,652 (9%) in transportation, communications and other public utilities, 84,477 (5.5%) in construction, 60,330 (4%) in public administration, including federal, state and local government officials and employees, and 50,489 (3%) in finance, insurance, and real estate positions.

The dominance of manufacturing employment over other industry groups in Missouri was recorded first by the 1950

[1] U. S. Bureau of the Census, **Census of Manufactures, 1958,** Area Reports: Missouri, p. 2.
[2] **Ibid.,** p. 3.
[3] U. S. Bureau of the Census, **Census of Mineral Industries, 1958,** Preliminary General Statistics, MIC(P)-2, p. 3.
[4] Robert E. Graham, Jr., "Regional Markets in 1958," **Survey of Current Business,** Vol. 39, August, 1959, p. 24.
[5] Data from **U. S. Census of Population, 1950,** Vol. II, Characteristics of the Population, Part 25, Missouri, Chapter B.

Census of Population (Fig.1). The Census of 1940 and earlier years recorded larger numbers of individuals engaged in agriculture than in any other industry group. Manufacturing ranked second from 1910 until 1950. Both the number of individuals engaged in manufacturing and their proportion of total employment increased with each census, except that of 1940. In 1940, manufacturing activity had not recovered from its decline during the period of economic depression in the middle 1930's. The decreasing number of farmers and farm workers since 1900 continued through 1940 and 1950, however, and the trend toward dominance by manufacturing employment was merely slowed by the slump of the decade between 1930 and 1940. The number increased from 162,424 in 1900 to 189,969 in 1910, 252,879 in 1920, and 296,214 in 1930. It declined to 244,714 in 1940, less than the number two decades earlier, but it exceeded any previous total when it reached 331,885 in 1950.

The number employed in manufacturing continued to increase after 1950, reaching a total of 372,950 in 1953.[6] It dropped to 382,430 in 1954, but increased during subsequent years to reach an all-time high of 400,153 in 1957. The number of individuals employed in manufacturing during 1958 was 380,749, a decrease of 5 per cent. The latter is presumably an annual fluctuation which does not indicate any change in the long-term trend. The **1960 Census of Population** will doubtless mark a recovery and a larger employment in manufacturing than any previous year.

INCOME

In addition to the number of persons employed, the income such employed persons receive is a measure of the relative

[6] Statistics in this paragraph are from the **Census of Manufactures** in 1954 and 1958, and from the **Annual Survey of Manufactures** for other years since 1950. The **Annual Surveys** are based on sampling; the regular censuses on complete canvassing. It should be pointed out that definitions of industries and industry groups have changed slightly with the different censuses. Standardization has improved in recent years, and for earlier years comparability among major industry groups is satisfactory for the present purposes.

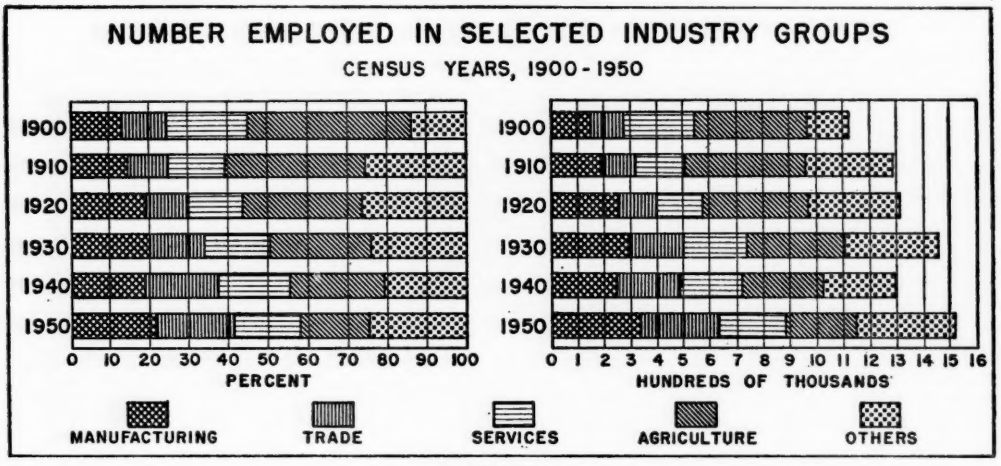


FIGURE 1.

Note. Industry groups of employed persons in Missouri, by decades, 1900-1950. Because of changes in definition, the industry groups are not strictly comparable in the different years, particularly between earlier and more recent years. Comparability is adequate for broad generalizations. (Data from U. S. Bureau of the Census, **Census of Population,** various years).

significance or importance of the different economic activities in which they are engaged. The "income received by persons for participation in current production"[7] consists of the sum of all wages, salaries, other labor income (such as employer contributions to pension funds), and proprietors' income (net earnings of the self-employed, including farmers, independent professional practitioners, and proprietors of non-farm business establishments). This income total for Missouri was 6.8 billion dollars in 1958. The largest single source was manufacturing, which accounted for 1.8 billion dollars, or 27 per cent of the total (Fig. 2). Wholesale and retail trade ranked second to manufacturing, providing 22 per cent (1.5 billion dollars) of the total income to individuals in the state. Government (equated to "public administration" in the Census industry groupings) and services each produced 9 per cent of the income (635 and 633 million dollars respectively), and agriculture ranked fifth with 629 million dollars (also 9 per cent).

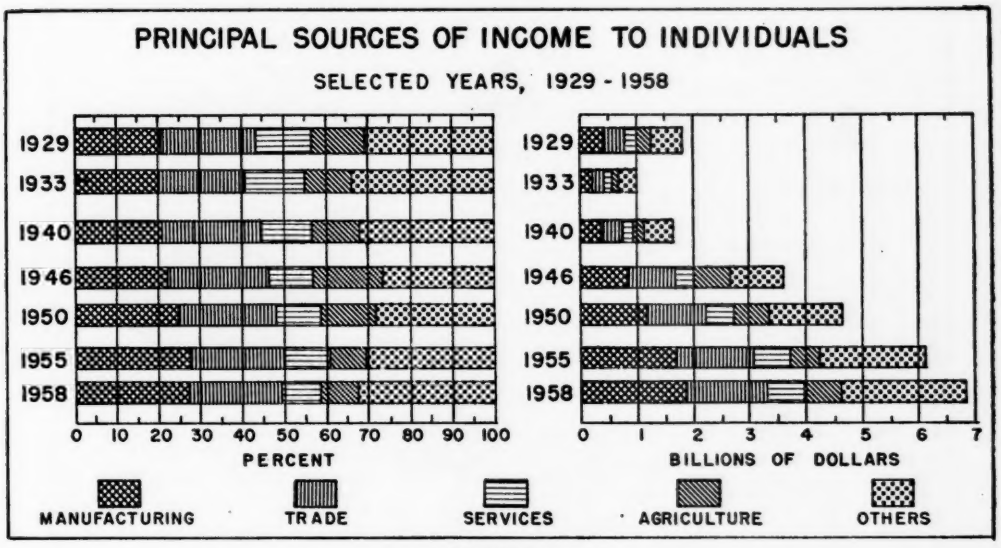


FIGURE 2.

Note. Principal sources of income received by persons in Missouri for participation in current production, selected years, 1929-1958. Income consists of wage and salary disbursements, other labor income, and proprietor's income. (Data from U. S. Office of Business Economics).

As a source of income to individuals in Missouri, manufacturing has increased with other segments of the economy since 1933. In relative position, manufacturing was second to wholesale and retail trade until 1948. It produced from 20 to 22 per cent of the total income from 1929 until 1948, while trade provided from 21 to 24 per cent of the total. Income from

[7] This statistical series for the United States and for individual states is maintained by the U. S. Office of Business Economics in the Department of Commerce. Statistics covering the period 1929 to 1955 were published by Charles F. Schwartz and Robert E. Graham, Jr., in **Personal Income Since 1929,** a supplement to **Survey of Current Business,** 1956. The series has been continued in each August issue of **Survey of Current Business.** The definitions of industry groups of the Standard Industrial Classification used by the Office of Business Economics are not identical in detail to the classification used by the Census of Population from which the employment data used above were derived. The differences are minor, however, and are considered to be insignificant for the major groups used here.

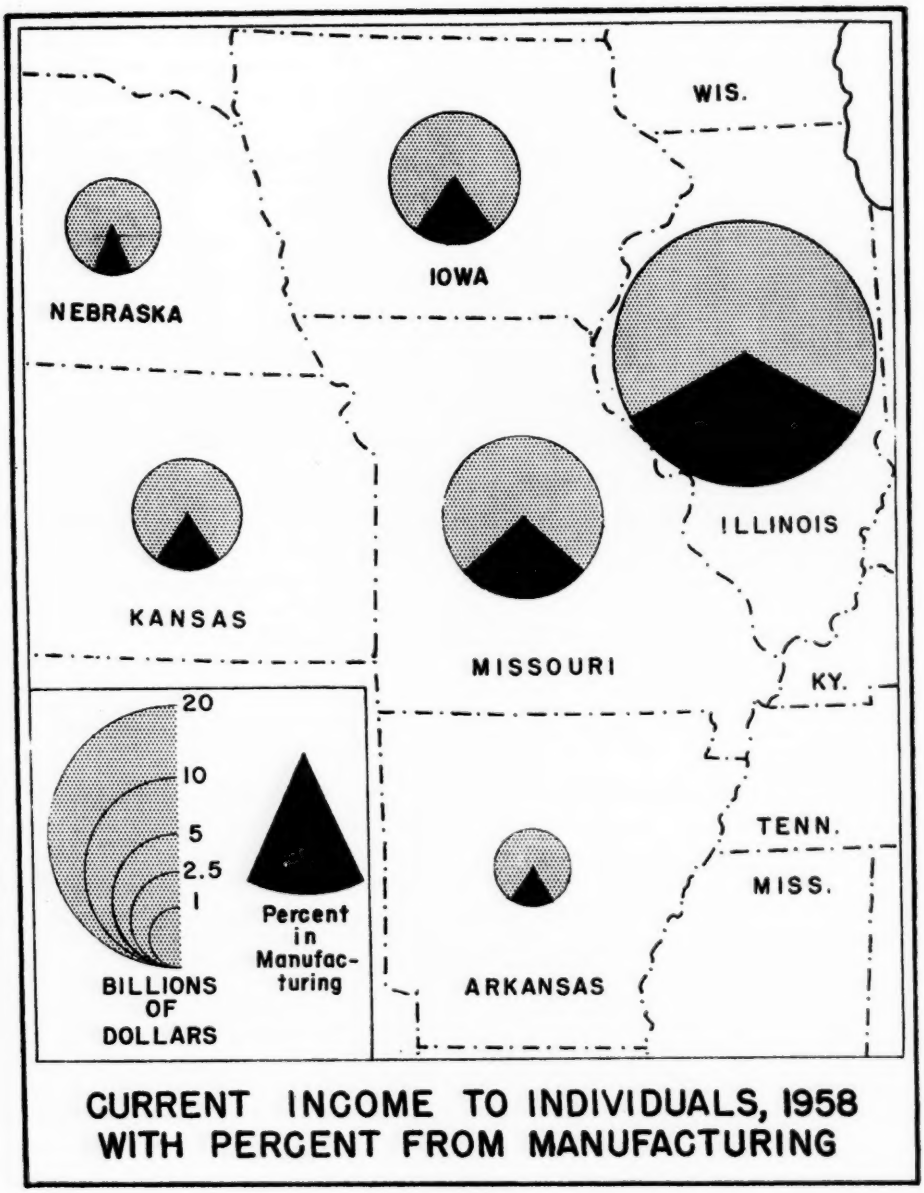


FIGURE 3.

Note. Number of employed persons in Missouri and adjacent states, and per cent engaged in manufacturing in 1950. (Data from **1950 Census of Population**).

manufacturing accounted for from 25 to 27 per cent of the total in 1950, 1955 and 1958, and exceeded income from trade, which continued at 22 to 23 per cent of the total income.

Manufacturing is thus the principal income-producing activity in Missouri as well as the leading type of employment. Both it and wholesale and retail trade accounted for larger proportions of the income than of the number employed. The per capita income in manufacturing industries is thus substantially higher than in most other industry groups in Missouri.

MANUFACTURING INCOME GROWTH

The income produced by manufacturing in Missouri increased 829 per cent in the quarter-century between 1933 and 1958. It rose from 199 million dollars to 1,849 million during the period. All income to individuals increased 580 per cent; from one billion dollars in 1933 to 6.8 billion in 1958. Manufacturing thus achieved its ranking position in the state's economy by means of a higher growth rate than any other sector. Its share of the total income increased from 20 per cent in 1929 and 1933 to 27 per cent in 1955 and 1958 (Fig. 2). Much of the growth in manufacturing was at the expense of agricultural income. The latter increased from 10 per cent of the total in 1933 to 17 per cent in 1946 and 1948, but declined to 9 per cent in 1955 and 1958. It provided only 7 per cent of the total state income in 1957. The dollar income from farming increased from 102 million dollars in 1933 to 772 million in 1948 and 616 million in 1950. It declined to 544 million dollars in 1955 and 473 in 1957, but increased to 629 million in 1958. Agricultural income has increased over the years, but at an irregular rate and more slowly than manufacturing and some other income sources. Trade has increased at about the same rate as the overall growth, and has rather consistently contributed from 22 to 24 per cent of the total income. Income from services expanded through the 25-year period, although at a slightly lower rate than the total. Its contribution decreased from 13 and 14 per cent in 1929 and 1933 to 9 or 10 per cent in recent years. Manufacturing has been the most dynamic sector of the economy of Missouri.

REGIONAL IMPORTANCE

Manufacturing occupies a more important place in the economy of Missouri than it does in any of the four principal adjoining states (Illinois, Iowa, Kansas, and Arkansas), except Illinois (Fig. 3). A total of 331,855 persons were engaged in manufacturing in Missouri in 1950, as compared with 1,135,944 in Illinois, 151,984 in Iowa, 88,922 in Kansas, and 85,133 in Arkansas.[8] Comparison with total numbers is less significant than proportions of the totals, since the total population and number of employed persons differ greatly among the five states. Missouri and the principal adjoining states rank in the same order in per cent of employed population engaged in manufacturing, except Arkansas exceeds Kansas. Illinois again leads, with 32 per cent of its employed population engaged in manufacturing in 1950, followed by Missouri (22%), Iowa (15%), Arkansas (14%), and Kansas (13%).

The position of Missouri in relation to adjoining states is similar in income derived from manufacturing employment to its position measured in terms of employment numbers (Fig. 4). Again, Illinois ranks first, with $6,591,000,000 of

[8] Data from **1950 Census of Population**, Vol. II, Characteristics of the Population.

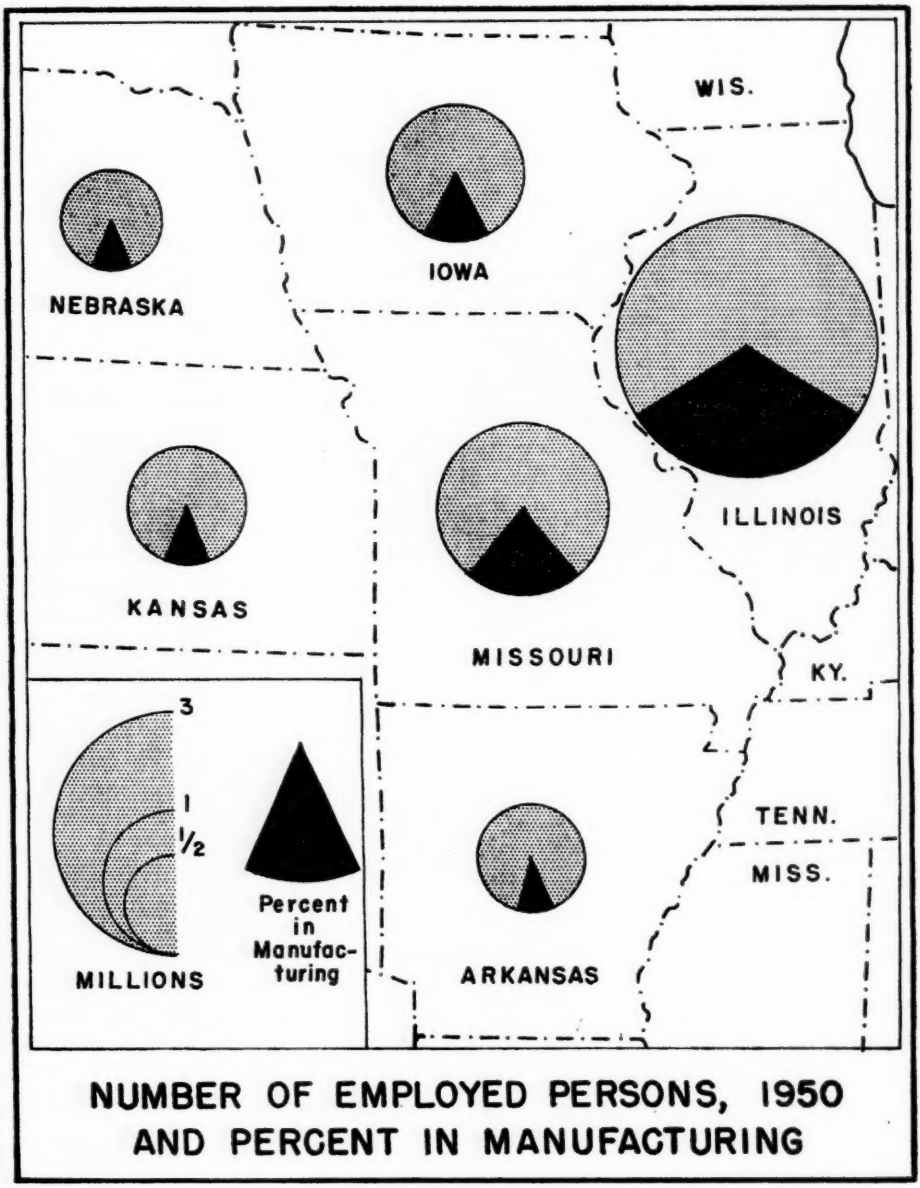


FIGURE 4.

Note. Income received by persons for current production in Missouri and adjacent states, 1959, with per cent from manufacturing employment. (Data from U. S. Office of Business Economics, **Survey of Current Business,** August, 1959).

income to individuals in manufacturing, as compared with $1,849,000,000 in Missouri.[9] These comprise 34 per cent and 27 per cent, respectively, of the total income to individuals in the two states during 1958. The somewhat higher percentages of income from manufacturing than of employment in manufacturing are indicative of the above-average per capita income of manufacturing employees and proprietors. Iowa ($839,000,000), Kansas ($633,000,000), and Arkansas ($316,000,000) followed Missouri in income to individuals engaged in manufacturing in 1958. This was 20 per cent of the total income in Iowa and 19 per cent in each of the other two states. Although the income from manufacturing in Kansas was twice the amount in Arkansas, the total income in Kansas was also twice as great, and the per cent from manufacturing was the same in the two states.

Missouri is located at the western margin of the major American Manufacturing Belt.[10] Most delineations include only the St. Louis area as part of the Belt, and define it as an outlying district separate from the major belt of manufacturing activity lying to the east. In states located in the American Manufacturing Belt, manufacturing accounts for 30 to 45 per cent of both employment and income. The decrease in manufacturing activity westward across the boundary is measurable in the decreasing number and proportion of individuals engaged in manufacturing across Illinois, Missouri, and Kansas. The same fact is evident in comparing Illinois, Iowa, and Nebraska (Figs. 3 and 4).

The growth of manufacturing in Missouri, attested to by the increasing employment and income during recent decades, supports the predictions of westward expansion of the Manufacturing Belt made by some early writers. A similar growth has occurred in Iowa, where income to individuals engaged in manufacturing increased from 12 to 13 per cent of income from all sources in 1929, 1933, 1940, and 1946 to 16 per cent in 1950, 21 per cent in 1955, and 20 per cent in 1957 and 1958.[11] The continued growth of manufacturing in Missouri in the future seems to be a logical expectation.

[9] Income data are from the U. S. Office of Business Economics. See footnotes 4 and 7, above.

[10] Several studies which define and delimit the American Manufacturing Belt are listed in the bibliography in Chauncy D. Harris, "The Geography of Manufacturing," pp. 293-308 in **American Geography, Inventory and Prospect**, edited by Preston E. James and Clarence F. Jones. Syracuse University Press, 1954.

[11] A recent analysis of manufacturing employment and payroll data in Iowa points to westward expansion of the Manufacturing Belt in that state. See H. H. McCarty, "Iowa and the American Manufacturing Belt," **Iowa Business Digest**, Vol. 31 (February, 1960), pp. 4-9.

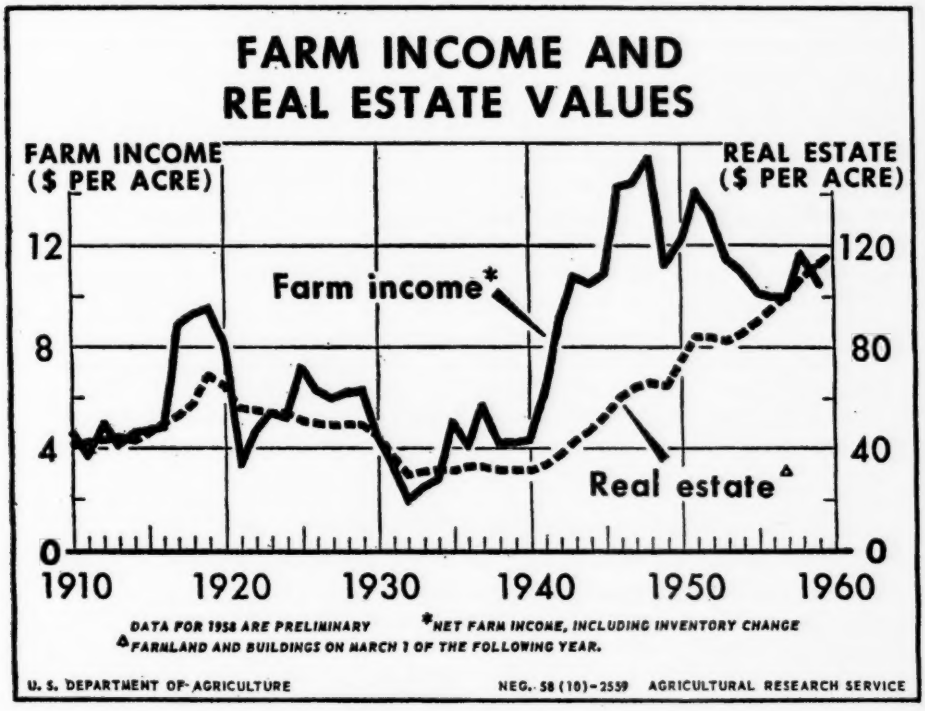
Factors Influencing Farm Real Estate Values

FRED E. JUSTUS, JR.
Assistant Professor of Agricultural Economics
University of Missouri

Farm real estate values in the United States have increased almost continually since early in the 1930's. During the early years of this advance, the recovery of our economy from the depths of the depression and the world conflict which followed were primary forces behind the higher market values. The continuing advance in the market value of farm real estate since World War II, and more particularly since 1952, has puzzled many people interested in agriculture. Realized net farm income has decreased every year but one since 1951: yet farm real estate values have marched steadily higher.

Every time farm real estate values began to taper off after World War II forecasters have said that the peak has been reached and lower real estate values are just around the corner. Each time these predictions have proven wrong. In recent months predictions of level or somewhat lower land values have again begun to appear, perhaps with some justification. The market value of farm real estate for the United States as a whole increased only 3 per cent from March 1, 1959 to March 1, 1960 compared to advances of 6 to 8 per cent during the previous three years. Perhaps better justification for these predictions is the fact that from November 1, 1959 to March 1, 1960, normally the most active real estate sales months, the increase was only one per cent. In seventeen states the market value of farm real estate showed decreases of 1 to 2 per cent during this period while five other states experienced no change. Corn Belt land exhibited a great deal of stability from March 1, 1959 to March 1, 1960, advancing only 2 per cent during the year.

Whether these developments indicate lower farm real estate values for the next few years or merely a breath-catching pause before still higher values, is still a matter of speculation. Data can be obtained to support either view. In this paper a combination of economic theory and empirical information is used to evaluate the factors that presently are influencing the market value of farm real estate and that will exert influence in the future.



COMPOSITION OF REAL ESTATE

Farm real estate includes land, and all permanent improvements on the land that are transferred with the ownership of land. These improvements include buildings, fences, various man-made structures to conserve soil and water, and mineral applications to increase the productivity of the land. All these items influence the flow of income to the owner and consequently influence the market value of the real estate. The implications of improvements will be discussed in a later section but the main emphasis of this paper will be on the basic resource—land.

WHAT IS LAND?

The best way to answer this question is to do some dissecting of the characteristics of land.

First of all, land is complex and varied in physical composition. If one analyzes the structure, texture, mineral and organic composition, as well as topography and drainage of land at different points within a small geographic area within a community or state, considerable variation in these characteristics can be found. Moreover, there are many living organisms in the soil and many natural and man-made forces constantly acting on the land. Thus, changes occur in these land characteristics over time. For many economic uses these changes have no consequence, but for agriculture they are important.

Secondly, land is fixed physically in amount and location. In other words, the spatial boundaries and location of a particular piece of property always remain the same. Of course, tracts can be sub-

divided or combined as far as legal ownership is concerned but the same land remains in the same place.

Thirdly, land is property. It can be leased and sold in our society. This aspect of land involves the rights and responsibilities of individuals in the use and control of land. Except for certain restraints exercised for the benefit of society and the protection of the rights of other people, the owner can use land in any way he sees fit.

Fourthly, land in our economy is treated as capital. Classical economists said that land is a gift of nature. In its spatial aspects and native characteristics at time of initial control and use this is correct. At least this is true from the standpoint of society. For the individual, land is not a gift.

As land may be purchased, sold or leased in the same manner as other capital goods, the same problems exist in the allocation of land resources among various alternative uses. The quantity and productivity of land controlled and used by an individual is therefore not necessarily fixed.

Fifthly, land is a factor of economic production. Strictly speaking, it is necessary for all economic activity. In many economic pursuits, the role of land is merely to provide the place where activity is carried on. In agriculture, however, the role is more fundamental and creative. Man combines his management, labor, and capital resources with land in the production of food and fiber products.

Land Economists often state that there are two types of land (1) physical land and (2) economic land. Physical land is space. It has location, topography, drainage, and physical composition characteristics that condition, to a certain extent, its use. Economic land is created when labor, capital, and management are applied to physical land. Land is really only production potential. The potential is developed by applying the other three factors. The supply of physical land is fixed, but the supply of economic land is not. Economic land can be created or destroyed. Draining a swamp to put the space into agricultural production is an example of creating economic land; permitting excessive erosion may destroy a given area, at least for agricultural uses.

DIFFERENCES BETWEEN URBAN AND FARM REAL ESTATE

An individual or a firm that purchases urban property to set up a business is always faced with uncertainties as to the profitability of that particular venture at that particular location. In the case of a retail establishment this is especially true. These risks are associated with the spatial and location aspects of the land involved. However, none of these risks originate because of uncertainties about the physical productivity of the land itself. Therein lies a major difference between urban and agricultural land valuation.

The physical productivity uncertainties about the land play a vital role in the income derived from a farm business. For most farming purposes, large acreages are required, and there are tremendous differences in productivity both between geographic areas and within any particular area.

A second difference in the market for urban and farm real estate is the buyers involved. Urban real estate appraisal is somewhat simplified because of zoning regulations and social pressures. The use alternatives are restricted and the buyers of urban land have relatively uniform preference maps (or want patterns). The market value, therefore, corresponds rather closely to the want patterns of a homogeneous group.

The potential buyers of a particular tract of farm land, on the other hand, are not as easy to identify and certainly the productive value of the tract to each potential buyer is not the same. In addition to farming, there are other potential economic and social uses for what used to be called farm land. This is certainly true of land near urban centers. Some of the bewilderment about the continuing advances in market value of farm land actually comes about as a result of the terms farm land or farm real estate. More appropriate terms would be rural land or rural real estate.

A tract of farm land for sale may not only be considered for a multitude of nonfarm uses but also may be considered by heterogeneous groups of demanders for farming purposes. Every individual farmer has many alternative production possibilities. For each of the alternatives a given tract of land has a different productive value. Likewise, for the same production alternative, different tracts of land have different production values. This multitude of use possibilities along with imperfect knowledge of the physical productivity for a particular use makes the appraisal of farm land quite complex.

MAJOR FORCES THAT INFLUENCE THE MARKET VALUE OF FARM LAND

Among the forces that currently influence the general market value level of farm land in the United States, the levels in a specific area, and the value of a specific tract of land, the following seven forces are probably the most important.

1. **In a dynamic society, land will** move into the use that yields the highest economic return. For example, much of the arid West is at present in native grass which is used to graze livestock because that use will yield the greatest economic return. If the demand for wheat and other grain crops becomes great enough to make it profitable for some of this land to move into grain production, the present use will change.

Another example is found around urban areas. Farm land is moving into residential and urban business uses because these are higher economic uses. This is very evident at present and will continue to be so around most of the population centers throughout the United States. Improved highway facilities has let people live a considerable distance from their jobs thus an increasing proportion of our population is living in rural areas while working in cities.

Social uses of land such as for highways, military installations, and recreational facilities may not be entirely based on economic considerations. These uses are based on the goals and needs of society. The economic contribution of safety on the highway or national security is, of course, very difficult to measure.

Returns from a stream or lake that is developed for fishing may not accrue to any one individual, but society wants the land in this use because it gives them psychic satisfaction. The development has economic implications, however, in that it may increase the returns to motel keepers, service station operators, restaurant proprietors and others who render services to sportsmen and tourists.

2. **A second force influencing land** values that must be recognized is that land values are determined at the highest level of economic use and then spiral downward through the lower uses and lower productivity potentials. For example, one of the reasons for the decentralization of business and residential developments is the high real estate values and associated costs in the center of metropolitan areas. Tremendous ad-

vances in transportation have facilitated this movement. Businessmen who are accustomed to the high real estate value in the center of a metropolitan area will bid a higher price for land in the suburbs than can be obtained for residential use. If people are displaced in this process, they are then in a position to pay more for new property, probably in a new subdivision that was formerly farm land. The owner of the farm which is engulfed by this new subdivision receives a higher price for his land than if it were sold for agricultural purposes and can afford to pay more for other farm land if he desires to remain in farming. And so the upgrading in value goes on throughout an entire area.

In Illinois, the highest prices paid for farm land are in the cash grain area in the central part of the state. Land presently sells at $700-$800 an acre and is primarily sold in tracts of 40 to 80 acres. In some counties, nearly 80 per cent of all farm land is operated under lease. Those operators who wish to become landowners, either by choice or pressure through the loss of leases, often buy land in the fringe areas of the cash grain belt where the price is not so high. Yet they are accustomed to higher land prices and tend to bid more than the local farmers feel they can pay. An excellent example of this situation can be found in the north central counties of Missouri. Many farms in this area are being purchased by farmers from Illinois and Iowa at prices that local farmers believe are well above the earning value of the land. This process of value upgrading is repeated in successive waves down the farm land productivity scale.

3. **Non-agricultural capital is entering** the farm real estate markets in another way—the purchasing of farm real estate for investment, and to a certain extent for speculative purposes by non-farm people. This is not a new situation. Both Washington and Jefferson at the time of the American Revolution wrote about the value of land as an investment. Major forces that have led to a definite increase in this type of activity in recent years are the high level of farm income immediately after World War II, use of farm real estate as an income tax evasion mechanism, the prospect of further advances in land values as population expands, and hedging against inflation. Not the least of these reasons is that many persons consider farm real estate good protection against loss of purchasing power during inflations.

Many of these non-farmer buyers do not depend solely on income from the purchased land to pay for the land, yet the prices they pay tend to be bench marks of land values in an area. This fact is a major concern to farmers who have to pay for land solely out of farm income from the land because the bench mark values are likely to be higher than the agricultural productivity of the land justifies.

In the past, the market value of farm real estate reflected very closely the capitalized value of net farm earnings. Keen competition for farm real estate and the introduction of various "external" forces in the farm real estate market have raised doubts about this relationship. Scofield and his associates in the Agricultural Research Service, U. S. Department of Agriculture, in studying land values since World War II, have found a much closer association between land values and Gross National Product than between land values and either net farm income or various commodity price indices.[1]

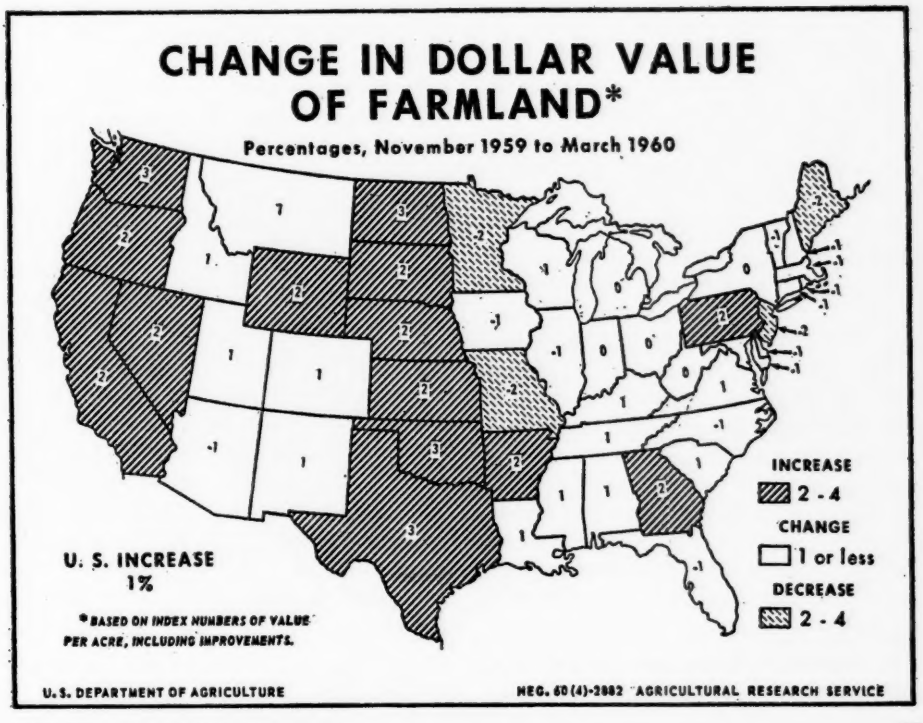
Two reasons given by persons in the

[1] Scofield, W. H. "Prevailing Land Market Forces," **Journal of Farm Economics**, Volume XXXIX, Number 5, December, 1957.

real estate profession for predicting stable and even lower farm land values in near future are due to changes in this non-farmer buyer factor. Changes have been made recently in the internal revenue laws to discourage the purchasing of farm land to escape high income taxes. The laws have reduced the profitableness of this procedure but have not eliminated its use. The second reason is that the rate of returns from non-farm land investments such as Government bonds, and Savings and Loan Associations accounts has increased to a level that makes farm land less attractive as an investment. This is particularly true in light of declining returns received by farm land owners the past few years.

4. **The fourth major force that is influencing** market value of farm land is the changing role of land as a factor of production in agriculture. The statement that farms are becoming larger, more commercialized, and more specialized will surprise nobody. A major part of these developments has been the tremendous substitution of capital in the form of machinery and equipment for labor. What many people do not realize is that capital is also being substituted for land. Capital in the form of fertilizers, irrigation, terraces, and other land improvements has increased the natural productivity of land. Thus capital has been substituted in part for the acreage needed to attain a larger farm business. Land has become a smaller part of the total farm business investment and consequently a considerably smaller per cent of the net farm income can be (or should be) capitalized into farm land value.

This has not been the case in recent years. Many persons have been capitalizing into land values not only the net in-


CHANGE IN DOLLAR VALUE OF FARMLAND*
Percentages, November 1959 to March 1960
U. S. INCREASE 1%
*BASED ON INDEX NUMBERS OF VALUE PER ACRE, INCLUDING IMPROVEMENTS.
INCREASE
2 - 4
CHANGE
1 or less
DECREASE
2 - 4
U. S. DEPARTMENT OF AGRICULTURE
NEG. 60(4)-2882 AGRICULTURAL RESEARCH SERVICE

come rightly attributable to land, but also that attributable to the substituting capital (fertilizers, terraces, machinery, etc.) and even that attributable to the operator's labor and management. Lack of knowledge about the exact contributions of the various factors of production is the main reason for the over capitalization.

5. **The fifth force influencing land** values is the large demand by farmers for land to expand the size of their farming units. Farmers are becoming conscious of the decrease in unit costs of production that result from enlarging the scale of operation. Many farmers have machinery sufficient to operate larger units and a labor supply not fully utilized. As a result they are bidding high prices for tracts of land which are adjacent to or near the acreage they already operate. This has led in some areas to the division of farms into 40 to 80 acre units for sale to two or more nearby farmers. The practice is very prevalent in cash grain areas, where the market value of land is high. It is least common in dairy areas.

Farmers buying land to expand farming operations often pay more than the productivity of the particular tract would warrant. They are doing one of two things: (1) willing to accept a lower return on this additional investment in order to take advantage of the lower per unit costs of production associated with larger scale production, or (2) capitalizing into land values most or all of the net income derived from these economies of scale. In the latter, they are attributing to land returns that should be attributed to other production factors. Farmers justify doing this by pointing out that control of land is a prerequisite to production, and buying the land is often the only means of getting control.

6. **Buildings have less influence on** the market value of land than in the past. In many areas a relatively small tract without buildings sells for just as much or even more than one with buildings. On many farms in Missouri, the value placed on buildings has been much too high, particularly in terms of their contribution to net farm income. There is a tendency to appraise buildings in terms of replacement less depreciation rather than their present or future value to the farm business. The buildings on a farm can be either an asset or a liability to a farm business, depending upon their design, type and versatility. Many farm buildings are obsolete as far as efficient production is concerned. With increased farm business specialization, the role of buildings will likely increase.

7. **A seventh force that influences the** market value of rural real estate is governmental programs. The federally sponsored cooperative credit agencies such as the Federal Land Bank have reduced interest rates on farm mortgages and made them relatively uniform throughout the country. Thus land buyers have lowered their capitalization rate and increased land values.

Other governmental programs such as the Soil Bank, and price support programs have influenced land values. It is not difficult to find written opinions on the merits and disadvantages of these programs. The important thing is that agriculture is likely to have some type of subsidy for some years to come and that these government payments will be capitalized into the land values. Abandonment of the subsidy would cause hardship among those who have made commitments supported by it. Naturally, people who have title to farm land when subsidies become effective receive a windfall profit, but most of the later buyers are at a disadvantage because of the increased price they must pay.